Notice of Allowability	Application No.	Applicant(s)	
	10/705,182	MOFFATT, STEPHEN	
	Examiner	Art Unit	
	Johnnie L Smith II	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *interview conducted 01/24/05*.

2. ☒ The allowed claim(s) is/are *1,3-8,10-20,22-26,28,29,31-36 and 38-40*.

3. ☒ The drawings filed on *10 November 2003* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *0126* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Shirley Church on 01/24/2005.

The application has been amended as follows:

Specification

In specification, on page 16 line 6 add at the statement: Preferably the compliant layer is between 1.0 and 3.0 μm thick [.], thus, the compliant layer should be capable of withstanding at least 10% shear stress without exceeding the yield strength of the compliant layer.

Claims

Claim 1: A wafer holder for retaining a substrate within a processing chamber comprising: an electrode; and one or more layers covering a portion of said wafer holder which contacts a wafer, where at least one of said layers is compliant, so that said portion of said wafer holder which

contacts said wafer deforms with said wafer, avoiding relative movement between said wafer and said contacted portion of said wafer holder, when there is localized thermal deformation of said wafer surface during processing.

Claim 4: The wafer holder of claim 1 wherein said compliant layer can withstand at least 10% shear stress without exceeding [a] the yield strength of the said compliant layer material.

Claim 8: An apparatus for projecting patterned charged particles onto a substrate comprising: a processing chamber; a charged particle source for generating a charged particle beam that impinges on the substrate; and an electrostatic chuck comprising an electrode and one or more layers covering a portion of a substrate holder which contacts a substrate, where at least one of the layers is compliant, so that the portion of the substrate holder which contacts the substrate deforms with the substrate avoiding relative movement between the substrate and the contacted portion of the substrate holder, when there is localized thermal deformation of the substrate during processing.

Claim 12: The apparatus of claim 8 wherein the compliant layer can withstand at least 10% shear stress without exceeding the yield strength of the said compliant layer material.

Claim 19: A method for patterning a photoresist layer on a substrate comprising the steps of: forming a photoresist layer on the substrate; positioning the substrate on an electrostatic chuck having one or more layers covering a portion of the substrate chuck which contacts the substrate, where at least one of the layers is compliant, so that the portion of the electrostatic chuck which contacts the substrate deforms with the substrate, avoiding relative movement between the substrate and the contacted portion of the electrostatic chuck, when there is localized thermal deformation of the substrate during processing; and exposing portions of the photoresist layer on the substrate to a charged particle beam.

Claim 26: An electrostatic chuck for use in substrate processing, the chuck having an electrode covered by an electrically insulative layer for receiving the substrate, [wherein the improvement comprises] comprising: the electrically insulative layer which is elastic, in a manner such that the portion of the electrostatic chuck which contacts the substrate deforms with the wafer, avoiding relative movement between the substrate and the

contacted portion of the electrostatic chuck, when there is localized thermal deformation of the substrate during processing and can withstand at least 10% shear stress without exceeding the material yield strength.

Claim 29: A method for holding a wafer on a chuck having an electrode and one or more layers covering a portion of the chuck which contacts the wafers, the method comprising the steps of: selecting the layers so that at least one of the layers covering the portion of the chuck which contacts the wafer is compliant so that the portion of the chuck which contacts the wafer deforms with the wafer, avoiding relative movement between the wafer and the contacted portion of the chuck, when there is localized thermal deformation of the wafer during processing; placing the wafer on one of the layers of the chuck, and energizing the electrode.

Claim 32: The method of claim 29 wherein the compliant layer can withstand at least 10% shear stress without exceeding [the] a yield strength of the said compliant layer material.

Claim 36: An apparatus for handling a substrate for use in semiconductor processing comprising: a substrate holder; and one or more layers covering a portion of the substrate holder which contacts the substrate, where at least one of the layers is compliant, so that the portion

of the substrate holder which contacts the substrate deforms with the substrate, avoiding relative movement between the substrate and the contacted portion of the substrate holder, when there is localized thermal deformation of the substrate during processing.

Claim 38: The apparatus of claim 36 wherein the compliant layer can withstand at least 10% shear stress without exceeding [the] a yield strength of the said compliant layer material.

Allowable Subject Matter

2. Claims 1, 3-8, 10-20, 22-26, 28-29, 31-36, and 38-40 are allowed.

3. The following is an examiner's statement of reasons for allowance: the prior art searched and cited failed to teach or fairly suggest an apparatus for projecting patterned charged particles onto a substrate; a method for patterning a photoresist layer on a substrate; an electrostatic chuck for use in substrate processing; and an apparatus for handling a substrate for use in semiconductor processing; all, all having one or more layers covering a portion of a substrate holder which contacts the substrate, where at least one of the layers is compliant, so that the portion of the substrate holder which contacts the substrate deforms with the substrate, avoiding relative

movement between the substrate and the contacted portion of the substrate holder, when there is localized thermal deformation of the substrate during processing in combination with the remaining elements of claims 1, 8, 19, 26, 29, and 36. All remaining dependant claims herein are allowable because of their dependencies upon the listed independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnnie L Smith II whose telephone number is 571-272-2481. The examiner can normally be reached on Monday-Thursday 7-4 P.M. and Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLSII

Johnnie L Smith II
Examiner
Art Unit 2881

NIKITA WELLS
PRIMARY EXAMINER 02/01/05